

In the process of combustion, it was perceived that the Liverpool emitted most smoke, much of which passed unconsumed through the flues. It also fused, and becomes agglutinated at the surface; while the Cumberland, though at first became coherent, soon granulated as it were, and permitted the air to circulate freely among the particles.

The exudation of bitumen more rapidly than it could be consumed caused the Liverpool to emit a dense smoke, which must form a deposit of combustible matter in the flues and smoke pipes, and consequently require them to be more frequently cleaned.

The experiment lasted 2 hours 51 minutes, when the Liverpool was found to be entirely consumed and the Cumberland still burning, with a considerable quantity in the grant.

The Liverpool made twice the quantity of cinder. The Cumberland the most clinkers, but it was less vitrified. It is believed that taking into consideration the stage of consumption, the relative quality and condition of clinker were the same.

The Liverpool, apparently, contained the most bitumen, and the Cumberland, the most carbon: hence, it is inferred that the former will raise steam more rapidly, and the latter maintain the same pressure longer and more steadily.

Both burned beautifully, but the Cumberland appeared decidedly preferable: clearer, as possessing more carbon with a sufficiency of bitumen; more pleasant, as the absence of sulphur excludes the smell of sulpherated hydrogen; more equable in its process, and more durable in its existence.

(Signed.)

W. S. LYNCH.

J. W. SWIFT, Lieutenant,

W. S. Muse, Master,

JOHN FARN, 1st Ass't Eng'r,

HIRAM SANFORD, 2d do

Approved.

M. C. PERRY, Captain U. S. Navy, and

Commanding U. S. Steamer Fulton.

*Copy of the Letter forwarding the above Report.*

U. S. STEAMER,

NEW YORK, NOVEMBER 21st, 1839.

Sir:—I have deferred any experiment with the Cumberland coal, sent by you for trial on board this vessel, until I could procure some other of superior quality, with a view to give it a perfectly fair test.

Recently, the agent has purchased at New York, a cargo imported from Liverpool, which has proved to be the best we have ever had for steaming purposes, and with this the trial has been made.

The enclosed report of the officers instructed by me to make the experiment, will give the results; and having witnessed the